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RECORDS OF THREE PALAEMONID SHRIMPS NEW TO THE AUSTRALIAN FAUNA

A.J. BRUCE
Northern Territory Museum of Arts and Sciences,
GPO Box 4646, Darwin, NT 5794, Australia.

ABSTRACT

Three species of palaemonid shrimps, *Palaemon serrifer* (Stimpson), *P. semmelinkii* (De Man) and *Leandrites celebenensis* (De Man) are reported from Australian waters for the first time. These records from the Northern Territory, increase to six the number of species of *Palaemon* known from Australia, and a key is provided for their identification.

KEYWORDS: Zoogeography, Crustacea, Palaemonidae, marine, *Palaemon, Leandrites.*

INTRODUCTION

Recent collections around Darwin, the Cobourg Peninsula and in the Gulf of Carpentaria have revealed the presence of three species of free-living palaemonid shrimps in shallow coastal waters. The Darwin specimens occur on the foreshore of of the Northern Territory Museum and the Gulf of Carpentaria. Specimens were made available through the kindness of R.A. Kenyon, of the Fisheries Research Division of the Commonwealth Scientific and Industrial Research Organization, who obtained the specimens in the course of sampling seagrass beds for commercial prawn juveniles.

SYSTEMATICS

Palaemon serrifer (Stimpson)
(Fig. 1)

Leander serrifer Stimpson, 1860 : 41; Kemp 1925 : 305.

Palaemon serrifer — Holthuis 1950 : 83-86, Fig. 18 (Synonymy).

Material. 3 spms. (1 ovig. ♀), stn. CP/12, Coral Bay, Port Essington, Cobourg Peninsula, 11°11.3′S., 132°11.5′E., 0-0.5m, 4 May 1982, coll. A.J. Bruce, NTM Cr. 000909; 32 spms. (5 ovig. ♀), stn. AJB-23, Bullocky Point, Darwin, 12°26.0′S., 130°50′E., LWS, rotenone, coll. M. Burke, NTM Cr. 002701.

Diagnosis. Rostrum subequal to carapace length, with 9-16 dorsal and 2-5 ventral teeth, first 2-3 teeth situated on carapace, without elevated basal crest; carapace without supraorbital spines, with antennal and marginal branchiostegal spine, branchiostegal groove distinct anteriorly; upper antennular flagellum with fused portion half length of shorter free ramus; mandible with three segmented palp; carpus of second perciopod slightly shorter than chela, fingers about 0.7 of palm length; dactyls of ambulatory pereiopods robust, about 0.3 of propod length, propod of fifth pereiopod with transverse rows of setae distolaterally.

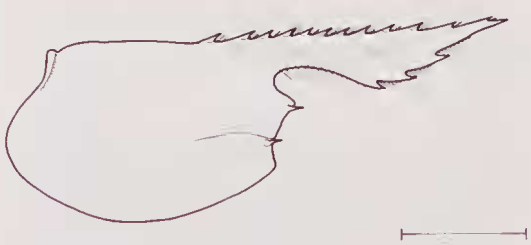

Fig. 1. *Palaemon serrifer* ♀ (ovig.), NTM Cr.002701, carapace and rostrum. Scale line, 3 millimetres.

Remarks. The ovigerous female specimens have postorbital carapace lengths of 5.0 -7.1mm and a rostral dentition of 12-14/4. In most specimens the dorsal rostral teeth, except for the 2-3 distal teeth, appear to be articulated with the carapace, as in material from the type locality, Hong Kong, recently redescribed by Bruce (in press).

Distribution. Type locality, Hong Kong. Also known from Bombay, India to Japan and from Java, Indonesia.

***Palaemon semmelinkii* (De Man)**
(Fig. 2)

Leander semmelinkii De Man, 1881 : 137; Kemp 1925 : 304.1

Palaemon (Paleander) semmelinkii - Holthuis 1950 : 59-60, Fig. 11 (Synonomy).

Material. 1 juv., Deception Bay, Groote Eylandt, Gulf of Carpentaria, seagrass beds, trawl, 3 April, coll. R.A. Kenyon, NTM Cr. 004454; 1 ♀ , Deception Bay, Groote Eylandt, Gulf of Carpentaria, trawl, 17 April 1986, coll. R.A. Kenyon, NTM Cr. 004450; 2 ♀ (1 ovig.), stn. NW2, North West Bay, Groote Eylandt, Gulf of Carpentaria, 7m, trawl, coll. R.A. Kenyon, NTM Cr. 005104.

Diagnosis. Rostrum distinetly exeeeding carapace length, without elevated basal crest, up-curved, with 7-10 dorsal and 2-5 ventral teeth, distal portion unarmed; carapace without supraorbital spines,with

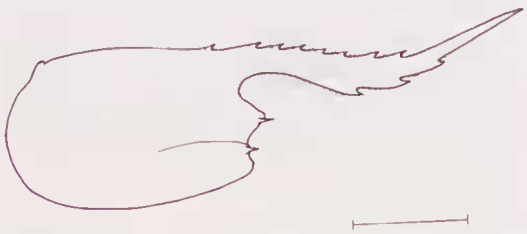

Fig. 2. *Palaemon semmelinkii* ♀ (ovig.), NTM Cr.005104, carapace and rostrum. Scale line, 3 millimetres.

antennal and submarginal branchiostegal spine, branchiostegal groove distinct anteriorly; upper antennular flagellum with fused portion shorter than free part of shorter ramus; mandible with two-segmented palp; carpus of second pereiopod shorter than chela length, fingers shorter than half palm length; dactyls of ambulatory periopods about 0.3 of propod length, propod of fifth pereiopod with transverse rows of setae distolaterally.

Remarks. The single ovigerous female has a postrostral carapace length of 5.4mm, the non-ovigerous females 5.8mm and the juvenile 2.6mm. The rostral dentition is 8-9/3, with a single tooth situated on the carapace and with a long toothless distal portion of the rostrum in all specimens. The post-rostral tooth and the first four rostral teeth appear feebly but completely articulated, the next two teeth distally partly articulated, and the more distal teeth non-articulate.

Distribution. Type locality, Makassar, Celebes, Indonesia. Also known from India, Burma, Nicobar Islands, Singapore, Sumatra, Java and Philippines.

***Leandrites celebensis* (De Man)**
(Fig. 3)

Leander celebensis De Man, 1881 : 141.

Palaemonetes hornelli Kemp, 1925 : 318, Figs 14-15.

Leandrites celebensis - Holthuis 1950 : 36-37 (Synonomy).

Material. 5 spms., Drimmie Creek, Gove, scoop, security pond, mud samples, 1 April 1971, N.T. Fisheries Division, NTM Cr.000893; 2 ovig. ♀ , 1 ♂ , stn. HL 84-12, Woods Inlet, Darwin Harbour, 2m, mangrove run-off, rotenone, 16 Mareh 1984, coll. H.K. Larson, NTM Cr. 002090; 1 ♂ , #1182, Groote Eylandt, salt lake (temp. 32.4°C, salinity 37.9 o/oo), 2.7m, 3 December 1984, coll. R.A. Kenyon, NTM Cr. 003321; 1 ♂ , 3 ♀ , 6 ovig. ♀ , #(5176, Myoola Bay, Groote Eylandt, 1.5m, (temp. 36.6°C, salinity 36.7 o/oo), 16 Deeember 1984, coll. R.A. Kenyon, NTM Cr. 003331; 1 ovig. ♀ , Deeeption Bay, Groote Eylandt, seagrass beds, trawl, 19 February 1986, coll. R.A. Kenyon, NTM Cr. 005101; 2 ♀ , Deception Bay, Grootc Eylandt, seagrass beds, trawl, 3 April 1986, coll. R.A. Kenyon, NTM Cr. 004453; 1 ♀ , Deception Bay, Grootc Eylandt, trawl, 17 April 1986, coll. R.A. Kenyon, NTM Cr. 004451; 1 ♀ , stn. NW2, North West Bay, Groote Eylandt, 7m (temp. 30.5°C salinity 34.8o/oo), trawl, coll. R.A. Kenyon, NTM Cr. 005105.

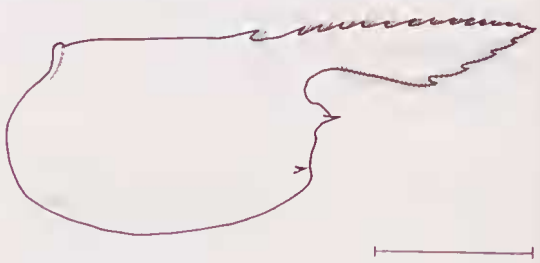

Fig. 3. *Leandrites celebensis* ♀ (ovig.), NTM Cr.003109, carapace and rostrum. Scale line, 3 millimetres.

Diagnosis. Rostrum subequal to earapace length, without elevated basal erest, with 13-17 dorsal and 3-5 ventral teeth, first two

situated on carapace; carapace without supraorbital spines, with antennal and postmarginal branchiostegal spine, branchiostegal groove absent; upper antennular flagellum with fused portion about 0.3 of free part of shorter ramus; mandible without palp; carpus of second pereiopod subequal to chela length, fingers subequal to palm; dactyls of ambulatory pereiopods long, slender, about 0.5 of propod length; propod of fifth pereiopod without transverse rows of setae distolaterally; endopod of male first pleopod with distinct appendix interna.

Remarks. The eleven ovigerous females ranged in size from 2.5-4.9mm in postorbital carapace length, with rostral dentitions of 12/3 to 16/4, with the first two teeth situated on the carapace and separated by a larger gap than that between the more distal teeth. None of the rostal teeth showed signs of articulations with the rostrum. On the dorsal rostral carina the interstices between teeth bear several short median setae. The ventral carina bears a dense row of submarginal setae along the whole length of the carina, continuous across the sides ventral teeth. Non-ovigerous females and males have similar rostra. The ova are numerous and small, length ca. 0.43mm. The fourth thoracic sternite is armed with a small slender median process projecting between the coxa of the first pair of pereiopods.

Distribution Type locality, Makassar, Celebes, Indonesia. Also known from south India, Singapore and Java, Indonesia.

DISCUSSION

The genus *Leandrites*, has been previously represented in the Australian fauna only by the species *L. cyrtorhynchus* Miyake and Fujino, reported from Darwin harbour in the Northern Territory (Bruce 1983), although also known from Heron Island on the southern Great Barrier Reef (pers. obs.) *L. cyrtorhynchus* is not closely related to *L. celebensis* and is reported to be involved in fish cleaning associations.

The genus *Palaemon* is represented in Australian waters by two endemic species, *P. serenus* (Heller) and *P. litoreus* (McCulloch), both known only from the south and east of Australia (Holthuis 1952). Also known from the Low Isles, Great Barrier Reef, is *P. debilis* Dana (McNeil 1968), a wide ranging

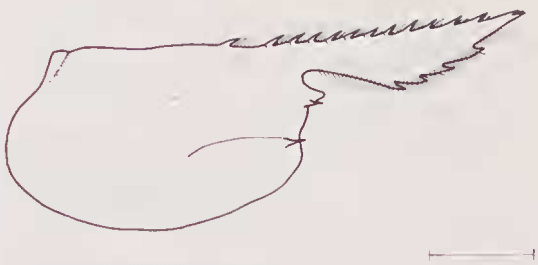

Fig. 4. *Palaemon macrodactylus* ♀ (ovig.), Lake Mannering, N.S.W., carapace and rostrum. Scale lines, 3 millimetres.

species recorded from the Gulf of Suez to the Hawaiian and Tuamotu Islands. It is interesting to note that the southern species are both endemic species and the tropical species well known, widely distributed Indo-West Pacific species.

The oriental species *P. macrodactylus* Rathbun, has also been reported from Australian waters by Holthuis (1980). This species normally occurs in Korean, Japanese and Chinese waters but it has also become established in San Francisco Bay (Newman 1963). In Australia it has been reported so far only in South Australia and from Lake Mannering, in the Lake Macquarie region, south of Newcastle, New South Wales. The Australian occurrences are discussed by Hutchings *et al.* (1987). For convenience, the carapace and rostrum are figured here (Fig. 4) for comparison with *P. serrifer* and *P. semmelinkii*. *P. macrodactylus* closely resembles *P. serrifer* but may be readily distinguished by the presence of postmarginal branchiostegal spine. It should be noted that the mandibular palp has recently found to show some variation in the number of segments in some species of *Palaemon*. The following key may facilitate the separation of the species of *Palaemon* now known from Australia.

1. Mandibular palp with two segments only, distal rostrum unarmed ... *semmelinckii*
— Mandibular palp with three segments; distal rostrum with teeth 2
2. Branchiostegal spine distinctly postmarginal ..... *macrodactylus*
— Branchiostegal spine marginal 3
3. Carpus of second pereiopod shorter than palm ..... *litoreus*
— Carpus of second pereiopod longer than palm 4
4. Rostrum far exceeding scaphocerite, with 2-8 proximal teeth and subterminal dorsal

tooth, 3-10 (usually 6) ventral teeth .... *debilis*

— Rostrum not far exceeding scaphocerite, usually with 3-4 ventral teeth 5

5. Rostrum with 6-9 dorsal and 3-4 ventral teeth; antennular upper flagellum with fused portion half as long as shorter free ramus ..... *serenus*

— Rostrum with 9-16 dorsal and 3-5 ventral teeth; antennular upper flagellum with fused portion distinctly less than half length of shorter free ramus ..... *serrifer*

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